



Part 2
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Takashi Suzuki, et al.
For : New Divisional Application based on application
Serial No. 07/401,539 filed on August 31, 1989,
entitled INK-SUPPLIED WIRE DOT MATRIX PRINTER HEAD

DECLARATION OF APPLICANTS IN SUPPORT OF
AMENDMENT TO SPECIFICATION AND DRAWINGS

Honorable Commissioner of Patents and Trademarks
Washington, D. C. 20231

Sir:

TAKASHI SUZUKI, MASANAO MATSUZAWA and YOSHINORI MIYAZAWA,
declare that we citizens of Japan, residing at Shiojiri-shi,
Nagano-ken, Japan, and are the applicants and inventors of the
above-identified application filed concurrently herewith, which is
a division of application Serial No. 07/401,539, filed August 31,
1989, which is a continuation of application Serial No. 07/161,216,
filed on February 17, 1988, which is a continuation of Serial No.
07/035,251, filed on March 23, 1987, now abandoned, which is a
continuation of application Serial No. 06/873,871, filed June 12,
1986, now abandoned, which is a continuation of application Serial
No. 06/659,816, filed October 11, 1984, now abandoned.

1. We make this Declaration in support of an amendment to
the drawings of the subject application deleting the legend "PRIOR
ART" from each of FIGS. 9 and 10 and the following amendments to
the specification:

a. Cancel page 2, line 11-page 3, line 11.

b. Page 5, line 4, cancel "conventional" and substitute
--one embodiment of the--;

after "tank", add --in accordance with
the invention--.

c. Page 13, after line 23, insert the following:

--FIG. 9 of the accompanying drawings illustrates an
embodiment of the ink tank construction in accordance

with the invention with an ink-impregnated member 160 such as of a porous material being enclosed in tank 140. The illustrated ink tank construction is of a simple shape and can supply a suitable amount of ink to a printer head body under appropriate capillary attraction by the ink-impregnated member. The ink tank can be impregnated with a large quantity of ink while preventing unwanted ink outflow from an air hole 142 and an ink supply port 141.

When ink is supplied from the ink tank of such a construction, ink in the tank remote from the ink supply port flows toward the ink supply port under a pressure difference developed between ink close to the ink supply port and ink remote therefrom as capillary attraction of the ink-impregnated member in the vicinity of the ink supply port is increased due to ink consumption. However, as can be seen in porous materials, ink-impregnated members are generally subjected to an increased resistance to ink flow and interrupted ink paths preventing a smooth ink flow as the quantity of impregnated ink is reduced. If the ink flow is blocked until a pressure differential sufficient to move ink in the ink tank is produced, then ink remote from the ink supply port remains retained and unused, resulting in a short ink supply duration.

As shown schematically in FIG. 10, the ink tank frequently tends to trap air pockets in the ink-impregnated member. When ambient temperature rises or atmospheric pressure is lowered under such a condition, air communicating directly with the air hole expands and is discharged out of the air hole as indicated by arrows A without applying any pressure on impregnated ink,

whereas the completely trapped air is expanded as indicated by the arrows B while moving the ink surrounding it. When such air pocket reaches the ink supply port, an undesired ink outflow occurs. This causes a smear or ink spot on a sheet of print paper, or ink finds its way into a printer head mechanism, resulting in a malfunction.--

d. Page 13, line 23, cancel "foregoing";

after "construction" add --of FIG. 4--.

3. The foregoing amendments to the drawings and specification serve to remove the erroneous identification of FIGS. 9 and 10 and the description thereof as forming part of the "prior art". The textural material at page 13 is taken from the cancelled material from pages 2 and 3. No new matter is added by these amendments.

4. The structures depicted in FIGS. 9 and 10 and described in the accompanying specification portions represent early embodiments of the ink supply system invented by us and improved during the course of our work. Thus, the embodiment of FIG. 9 was improved by the addition of the rib and channel structure of FIG. 4 and by other modifications. The embodiment described in FIG. 10 was improved by the impregnation of the ink in the ink absorbing member under low pressure as taught in the specification at page 8, lines 15-19 and page 13, line 26-page 14, line 4.

5. The structures of FIGS. 9 and 10 were neither published, publicly known or used nor incorporated in a product commercialized anywhere in the world prior to the filing date of our priority Japanese application first depicting those structures. These structures are not "prior art" under Section 102 of the U.S. Patent Laws.

6. The above-identified U.S. application claims the priority of five Japanese applications, the earliest filed on October 13,

6. The above-identified U.S. application claims the priority of five Japanese applications, the earliest filed on October 13, 1983 (Serial No. 59-191529), the next filed on November 29, 1983 (Serial No. 59-224892), and the last three, filed on May 22, 1984 (Serial Nos. 59-102841, 59-102842 and 59-102843). Certified copies of these applications have been filed with the U.S. Patent and Trademark Office. Japanese Application Serial No. 59-102841 includes as FIGS. 1 and 2, drawings which correspond to FIGS. 9 and 10, respectively of the above-identified U.S. application. In the Japanese application, these drawings are identified as prior art, in the sense that the substance of these drawings were depicted in other of our Japanese patent applications either previously or simultaneously filed, the priority of all of which were claimed in the above-identified U.S. application. Similarly, FIG. 1 of Japanese Application Serial No. 59-102843, which also corresponds to U.S. FIG. 9, was also identified as prior art for the same reason. At the time of our review of the original parent U.S. application, we had before us the Japanese priority applications and we accepted the "PRIOR ART" designation of FIGS. 9 and 10 because of the designations used in our later Japanese priority applications.

7. In connection with a review of the immediate parent application to this application and the claims thereof before filing the amendment leading to the allowance of that parent application, it was determined for the first time that the "PRIOR ART" designation of FIGS. 9 and 10 was erroneous, and accordingly, the accompanying amendment and this Declaration are prepared. A Declaration similar to this Declaration was filed in the above-mentioned parent application and the amendments referred to herein were entered by the Examiner in said patent application.

8. The error in the specification was made without deceptive intention and has been promptly corrected upon its discovery.

私は、ここに自己の知識にもとづいて行った陳述がすべて真実であり、自己の有する情報および信ずるところに従って行った陳述が真実であると信じ、さらに故意に虚偽の陳述等を行った場合、合衆国法典第18部第1001条により、罰金もしくは禁錮に処せられるか、またはこれらの刑が併科され、またかかる故意による虚偽の陳述が本願ないし本願に対して付与される特許の有効性を損うことがあることを認識して、以上の陳述を行ったことを宣言する。

Dated: August 28, 1990

私は、ここに自己の知識にもとづいて行った陳述がすべて真実であり、自己の有する情報および信ずるところに従って行った陳述が真実であると信じ、さらに故意に虚偽の陳述等を行った場合、合衆国法典第18部第1001条により、罰金もしくは禁錮に処せられるか、またはこれらの刑が併科され、またかかる故意による虚偽の陳述が本願ないし本願に対して付与される特許の有効性を損うことがあることを認識して、以上の陳述を行ったことを宣言する。

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Dated: August 28, 1990

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Takashi Suzuki
TAKASHI SUZUKI

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Masanao Matsuzawa
MASANAO MATSUZAWA

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Yoshinori Miyazawa
YOSHINORI MIYAZAWA